



STAINLESS STEEL

IN ARCHITECTURE

UNITED STATES STEEL

WHAT

IS U.S.S. STAINLESS STEEL

?

The term "stainless steel" identifies a group of alloy steels composed of iron, chromium and usually nickel, together with small amounts of other elements. These steels are characterized by high tensile strength combined with excellent resistance both to corrosion and to heat. U-S-S 18-8, in fact, may be said to approach "the perfect metal" for architectural applications in that it is permanent; it effectively resists all the destructive forces of nature—stress, corrosion, heat, wear and time itself.

The initials "U-S-S" identify stainless steels of accurate composition and carefully controlled heat-treatment, made and sold by the world's largest producers of high grade steels, the subsidiary companies of the United States Steel Corporation.

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Why is Stainless Steel Important to Architects?

THE architect is a creator. That which he creates is intrinsically an idea—a plan for a brighter kitchen, a skillful arrangement to attract traffic into stores, a beautiful, practical, yet strictly functional building. To give his idea physical reality, he is dependent on certain materials which are available to him. The limited physical properties of these available materials, however, impose limitations on his freedom to design, to create as he chooses.

For centuries the architect was dependent largely upon stone. Because stone offered him no strength in tension his columns had to be thick, his arches had to be massive.

Today, the architect is dependent to a great extent on metals which corrode. Because there will be a steady loss of metal his beams, columns, plates and sheets must be specified much thicker than his design actually requires. Because these metals tarnish, he must ordinarily avoid the use of large, exposed metal surfaces.

That is why U-S-S Stainless Steel is important to the architect. Not because it is merely another metal—but because it offers him an important range of properties:

(1) *Corrosion Resistance.* U-S-S 18-8, like glass, is completely impervious to atmospheric corrosion; and like glass, it needs merely a quick wash with soap and water to restore its original brilliancy and sparkle. Costly, laborious polishing is never needed—and since there can be virtually no loss of metal, there is no known limit to the useful life of U-S-S 18-8. Stainless Steel lasts indefinitely.

(2) *Greater Strength.* U-S-S Stainless Steel has a 3 to 1 advantage over most ordinary steels for construction.

(3) *Beauty.* U-S-S Stainless Steels are easily finished in a variety of splendid lustres ranging from glowing satin to high polish; they may be etched, tooled, sculptured and enameled.



U·S·S STAINLESS STEEL CAN REDUCE EXPENSE, SAVE MONEY

While the cost per pound of U·S·S Stainless Steel falls in the same range as that of other so-called "white metals", that is by no means a true measure of its real cost. Owing to its exceptional toughness and high tensile strength, it is often possible to use lighter sections of U·S·S Stainless Steel, which means that there are fewer pounds of metal to buy. Even more important, however, is the fact that the first cost of U·S·S Stainless Steel is virtually the last—there should never be any further expense for repairs, for replacements, nor for polishing. See page 15.

Considering all the factors of expense over the life of an average building, architects have found that for many applications U·S·S Stainless Steel is actually the least expensive metal to use!

SHAPES OF U·S·S STAINLESS STEEL

U·S·S Stainless Steel is usually available for immediate delivery from jobbers' stocks in the common metal forms: sheets, strips, tubular and structural sections. It is available in such a wide range of dimensions that practically any desired structure can be easily fabricated.

RECOMMENDED ANALYSIS FOR ARCHITECTURAL PURPOSES

U·S·S 18-8 (containing approximately 18% Cr and 8% Ni) is recommended for all architectural purposes. This analysis is com-

pletely immune to weather, to a wide variety of corrosive agents, and has highly satisfactory physical properties for all structural applications. U·S·S 17 (approximately 17% Cr) is satisfactory for interior applications, where exposure is not severe and cost-reduction an important consideration. It is available in the same finishes, shapes and sizes as U·S·S 18-8.

REASONABLE COST OF FABRICATION

Experienced architectural fabricators are now thoroughly familiar with the properties of U·S·S Stainless Steels, and are in a position to fabricate these metals at reasonable cost by virtually every artifice of the metal worker—welding, soldering, sawing, grinding, polishing, drilling, bending, deep drawing, rolling, etc. Extruded shapes alone are not available.

ARCHITECTURAL CONSULTING SERVICE

As a service to architects who contemplate using U·S·S Stainless Steel, we maintain extensive testing laboratories. Skilled metallurgists and the most complete equipment are available at all times. Thus we are able to assist architects with many problems which they may encounter.

To supplement this, architects will find a competent stainless steel specialist in each of our principal district offices. He can often suggest new ideas and applications for U·S·S Stainless Steel.

PHYSICAL PROPERTIES OF **U.S.S.** STAINLESS STEEL FOR ARCHITECTURAL USES

Metal annealed, unless otherwise noted
Data compiled by Research Laboratory, United States Steel Corporation

ITEM No.	Physical Properties	U-S-S 18-8	U-S-S 17
1	Specific Gravity		
2	lb./cu. in.	0.286	0.273
	low carbon steel = 1.00	1.01	0.96
3	Specific Electrical Resistance at 68°F.		
4	microhms/cm. ²	70 (cold worked = 70-82)	59
5	microhms/in. ³	27.6 (cold worked = 27.6-32.3)	23.2
6	low carbon steel = 1.00	6.4	5.4
7	Melting Range, °F.	2550-2590	2710-2750
8	Structure	Austenitic	Ferritic
9	Magnetic Permeability		
	as annealed	$\mu = 1.003$	Ferromagnetic
	after 10% reduction of area	$\mu = 1.10$	Ferromagnetic
10	Specific Heat		
11	cal./°C./gm. (0 to 100°C.)	0.12	0.11
12	B.t.u./°F./lb. (32 to 212°F.)	0.12	0.11
	low carbon steel = 1.00 (0 to 100°C.)	1.1	1.0
13	Thermal Conductivity		
14	cal./cm. ² /sec./°C./cm., at 100°C.	0.0390	0.0583
15	B.t.u./sq. ft./hr./°F./in., at 212°F.	113	169
16	low carbon steel = 1.00 at 100°C.	0.33	0.49
17	cal./cm. ² /sec./°C./cm., at 500°C.	0.0515	0.0624
	B.t.u./sq. ft./hr./°F./in., at 932°F.	150	181
18	Coefficient of Thermal Expansion		
19	per °F. $\times 10^{-6}$ (32 to 212°F.)	9.6	6.0
20	low carbon steel = 1.00 (32 to 212°F.)	1.45	0.91
	per °F. $\times 10^{-6}$ (32 to 932°F.)	10.2	6.7

	Mechanical Properties at Room Temperature	Annealed	Cold Worked	Annealed	Cold Worked
21	Tensile Strength, 10 ³ lb./sq. in.	80-95	105-300	75	100-190
22	Yield Point, 10 ³ lb./sq. in.	35-45	60-250	40	.....
23	Modulus of Elasticity, 10 ⁶ lb./sq. in.	29	.....	29	.....
24	Elongation in 2 in., %	55-60	50-2 (10")	27	25-2 (10")
25	Reduction of Area, %	55-65	65-30	55	40-20
26	Charpy Impact Strength, ft.-lb.	.....	.....	.....	.....
27	Izod Impact Strength, ft.-lb.	75-110	.....	8-25	.....
28	Endurance Limit (Fatigue), 10 ³ lb./sq. in.	35	94	50	.....
29	Brinell Hardness Number	135-185	170-460	175	185-270
30	Rockwell Hardness Number	B75-90	C5-47	B85	B90-105
31	Erichsen Value, mm.	11-14	.....	7-9	.....

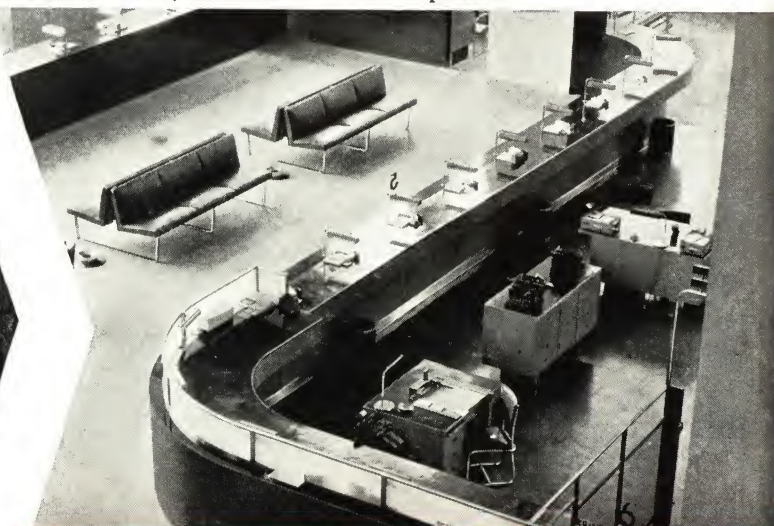
32	Stress Causing 1% Elongation (Creep) in 10,000 Hours		
33	At 1000°F., lb./sq. in.	17000	8500
34	At 1200°F., lb./sq. in.	7000	2100
35	At 1350°F., lb./sq. in.	3000	1200
36	At 1500°F., lb./sq. in.	850	.....
37	Scaling Temperature, °F. (approximate)	1650	1550
38	Initial Forging Temperature, °F.	2200	2000
39	Finishing Temperature, °F.	Not under 1600-1700	Not over 1400
	Annealing Treatment	Heat to 1900-2000°F. and quench (B)	(A)
40	Precautions		(D)

- (A) Anneal at 1400°F. after a small cold reduction, and quench.
 (B) Preheat slowly to 1600°F., then heat rapidly to the forging or annealing temperature. Exposure to temperatures between 1000 and 1500°F. produces marked susceptibility to intergranular corrosion. If the metal is unattacked, this can be cured by repeating the annealing treatment.
 (C) Preheat slowly to 1450°F., then heat rapidly to 2100°F. for forging. Full corrosion resistance is developed only in the heat treated condition. (Temper below 1000°F.)
 (D) In forging, preheat slowly to 1450°F. Excessive grain growth takes place above 2000°F. Expert welding is required to avoid excessive grain growth. Prolonged exposure at 850 to 950°F. produces cold brittleness. To prevent this, heat to 1400°F. before cooling, and quench.

Annealed unless otherwise noted. Data compiled by Research Laboratory, United States Steel Corporation



Beauty and utility are combined in this awning frame made of polished seamless stainless tubing. The lacing is so designed that the brilliant rafters are visible from below.



Counter trim, signs, numerals and rails of U-S-S Stainless Steel contribute to the inside atmosphere of the Philadelphia Saving Fund Society's spacious main banking room.

STANDARD SURFACE FINISHES OF

U.S.S. STAINLESS STEEL

Tube and sheet surface finishes on same horizontal line have approximately the same appearance.

For architectural applications, finishes 4, 6 and C are generally considered the best. Their rich satin luster is attractive, easy to clean, not easily marred.

Finishes 7 and D have a high polish which is suitable where pronounced accent and brilliant luster are desirable. This high polish,

however, is obviously more easily marred by scratching than satin finishes.

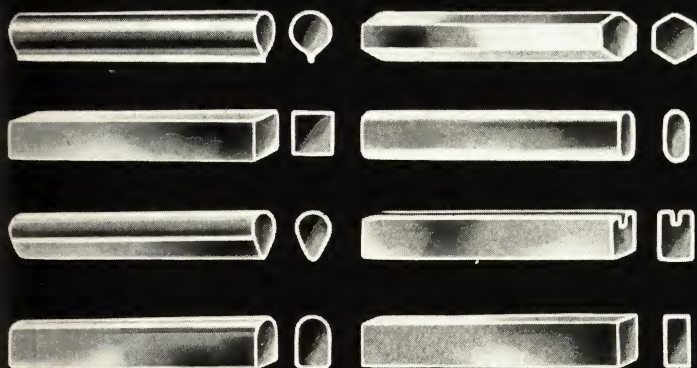
The other finishes are intermediate mill surfaces recommended where fabricating would damage one of the above finishes. In these cases, the final finish is applied in the fabricator's shop after fabrication.

It is not possible to illustrate these finishes adequately on the printed page. We shall, however, gladly send you samples on request.

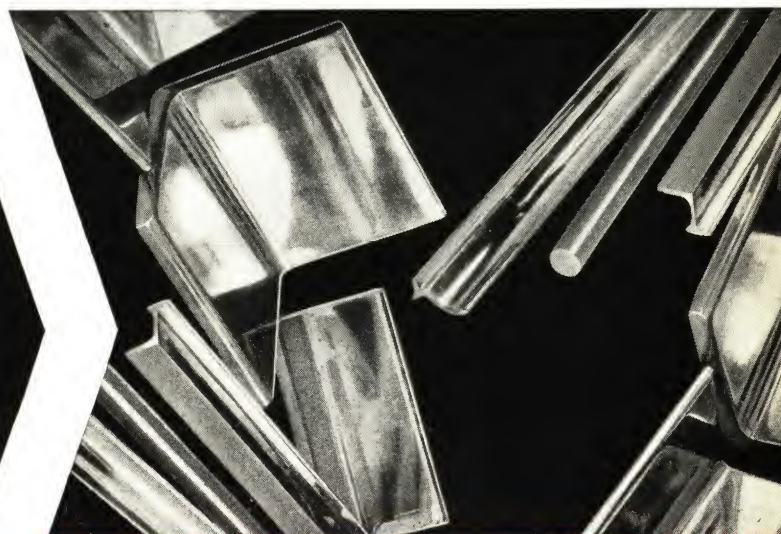
Finish Designation	PIPE AND TUBES	Finish Designation	STRIP, SHEETS AND LIGHT PLATES
0	Hot Rolled—Annealed—Not Pickled	1	Hot Rolled—Annealed—Pickled
1	Hot Rolled—Annealed—Pickled	2-D	Full Cold Rolled—Annealed—Pickled—Dull Finish
2	Cold Drawn—Annealed—Pickled	2-B	Full Cold Rolled—Annealed—Pickled—Bright Finish
2-A	Cold Drawn—Not Annealed—Pickled (Hard)	4	Standard Polish Finish
A	Standard Ground Finish (80 Grit)	6	Standard Polished Finish—Tampico Brushed
B	Semi-Polished Finish (120 Grit)	7	Special Polished Finish—Buffed
C	Standard Polished Finish (180 Grit)		
D	Mirror Polish—Very Finely Ground (320 Grit) and Buffed		

SOME STANDARD SHAPES

Below are shown a few of the many shapes in which U.S.S. Stainless Steel may be obtained. For further details, consult with your fabricator or communicate with our nearest district sales office.



Here are a few of the many shapes of seamless tubing which are made of U.S.S. Stainless Steel and may be adapted to architectural purposes.



For trim and fittings to suit the modern taste in enduring brilliance, shapes like these of U.S.S. Stainless Steel satisfy the most discriminating builder.

FABRICATING

Annealing: To anneal U-S-S 18-8 Stainless Steel properly, the entire work should be heated to approximately 1950° F. and then cooled as rapidly as possible, preferably by quenching. This annealing eliminates any hardening or strain which previous cold work may have caused, restores the stainless alloy to a complete austenitic structure of proper grain size—the structure of a maximum ductility, softness and corrosion-resistance.

Soldering: In spite of its highly impermeable surface, U-S-S 18-8 may easily be soldered if the surface is thoroughly cleaned and etched with a suitable acid (e.g. hydrochloric acid plus zinc chloride or 10% phosphoric acid). The zone to be soldered must be thoroughly etched—but it must be remembered that the etching fluid is highly corrosive. For this reason, care should be taken not to etch beyond the zone to be soldered and the flux must be thoroughly cleaned with dilute alkali immediately after soldering. Soldering, however, does not make a strong joint, and should ordinarily be used only to seal a joint secured by riveting or spot welding. 75% tin—25% lead solder is recommended because it discolors less rapidly. Stainless steel may be silver soldered, etc., with special hard solders and fluxes available for this purpose from commercial suppliers.

Cutting Operations: U-S-S 18-8 may be sawed, machined, drilled and threaded; but it is necessary to keep in mind that this metal is exceptionally strong and tough, and that it hardens quickly under cold work. For these reasons, the art of cutting U-S-S 18-8 may be summed up by these recommendations: (1) reduce cutting speeds, (2) take heavy cuts, (3) use sharp high speed tools, and (4) a generous rake and clearance. In sawing, for example, the saw should be heavily weighted and so applied that the first stroke definitely cuts the metal. A wavy set saw is recommended. If the saw is allowed to ride over the work without deep cutting, the stainless steel will quickly work-harden and become more difficult to cut. It may be cut dry, or with lard oil-sulphur lubricant. Tools should be sharp and kept sharp. A moderate amount of heating will make the cutting even easier.

Passivation: During fabrication operations, particles of base metals may become imbedded in the surface of stainless steel. These contaminating metals may, of course, corrode or discolor and give the false impression that the stainless steel itself is being corroded. Exposure for ten to fifteen minutes to 10-20% nitric acid (125-140° F.) will dissolve these particles and eliminate this potential source of trouble; it also passivates the surface of the stainless steel, giving it its highest degree of corrosion-resistance. Where dipping is impractical, the surface may be swabbed for five to ten minutes. The nitric acid treatment should always be followed by a thorough hot-water rinse.

Pickling: For pickling U-S-S 18-8 a hot solution is necessary. We recommend two solutions: 10% sulphuric acid with 10% common salt; or 20 parts of commercial nitric acid, 1 to 4 parts hydrofluoric acid plus water to make 100 parts by volume. Pickling should continue until scale is loosened



and the remaining scale thoroughly scrubbed off. After pickling, the stainless steel should be well rinsed in hot water, passivated by a few minutes dip in 10-20% nitric acid (125-140° F.), and then given a thorough final hot water rinse.

Punching and Shearing: For best results the engaging parts employed for shearing and punching should engage more neatly and with less clearance than those used for ordinary steel. It is particularly important that punches be kept very sharp and be set so as to cut completely through the metal, since U-S-S 18-8 will not snap out or break through as ordinary steels do. The exceptional ductility of U-S-S 18-8 may cause the metal to drag if these precautions are not observed.

Riveting: U-S-S 18-8 is well adapted to riveting, either hot or cold. Rivets up to 1/4" may be driven cold; hot rivets should be heated out of contact with a flame to 2100° F. and be set before they cool below 1800° F.

Forging: U-S-S 18-8 is readily forged at 2250° F., although it forges more slowly and will require more hammer blows, owing to its unusually high strength at high temperatures. Heating requires a longer time than is allowed for ordinary steels. Soaking at 1500° F. is recommended, to be followed by rapid heating to 2250° F. It is advisable to reheat, if the work cools, to 1750° F. before the forging is completed.

Polishing: Polishing technique will vary greatly with the contour of the surface and the type of finish desired. Silicon carbide and aluminum oxide type abrasives are the most suitable; coarser grits may be used dry, finer grits and buffing on a soft grease wheel with high-softening-point stearic base grease. Abrasives must be iron-free; otherwise the surface may be contaminated with iron compounds which will rust or discolor. Since high grinding speeds may roughen the surface of stainless steel, speeds during grinding should not exceed 8000 feet

U·S·S STAINLESS STEEL (U·S·S 18-8)

per minute; during buffing, not over 12,000 feet per minute. For buffing use "white rouge" or "green rouge"—never red, because of its iron content. To avoid scorching, open, well-ventilated wheels should be used since stainless steels are poor conductors of heat.

Spinning: Owing to its high ductility U·S·S 18-8 is well adapted to spinning but will, of course, require more power. Large radius spinning tools and slower speeds are advisable. Lubrication is desirable. We recommend equal parts by volume of lithophone and linseed oil. If the stock becomes excessively work-hardened before the desired deformation is obtained, it should be thoroughly cleaned, annealed at 1950° F. and quickly cooled in the air or by a water quench. The entire stock should be raised to the indicated temperature. This treatment will restore the stainless alloy to its original soft, ductile condition.

Welding: U·S·S 18-8 is well adapted to welding by electric resistance, electric arc, acetylene or atomic hydrogen methods; it cannot be hammer welded satisfactorily.

Surfaces should be thoroughly cleaned; in gas welding the flame should be as small as possible and practically neutral (reducing flames contain carbon, oxidizing flames may cause porosity), and it should be directed toward the unfinished work to avoid excessive heating. Do not puddle the weld. In electric welding the work should be negative; a current of about 40 amperes at 35 volts (open circuit) is generally satisfactory for a 3/32" rod, the current increasing with the rod diameter.

After welding, the bead should be ground flush with the surface and all oxide or discoloration adjacent to the weld removed. Puddling must be avoided.

CORROSION RESISTANCE

U·S·S STAINLESS STEEL RESISTS MANY TYPES OF CORROSION

Data on resistance of U·S·S Stainless Steel to many corrosive agents commonly encountered in architectural applications.

The following data are results of laboratory tests conducted by Fried. Krupp A.G. Since actual service conditions are not always exactly duplicated in the laboratory, these data should be considered indicative rather than positive. Most important to architects is the fact that U·S·S 18-8 is permanently immune to atmospheric

corrosion, never pits nor tarnishes, looks "brand new" forever.

A—Fully resistant (less than .00035" penetration per mo.)
B—Satisfactorily resistant (less than .0035" penetration per mo.)
C—Fairly resistant (less than .010" penetration per mo.)
D—Slightly resistant (less than .035" penetration per mo.)
E—Not resistant (less than .35" penetration per mo.)

U·S·S 18-8					U·S·S 17					U·S·S 18-8					U·S·S 17				
Substance	Condition	Temp. F.	18-8	17	Substance	Condition	Temp. F.	18-8	17	Substance	Condition	Temp. F.	18-8	17	Substance	Condition	Temp. F.	18-8	17
Acetic Acid	5% Agitated	70°	A	A	Chlorinated Water					Lard		70°	A	A					
	5% Aerated	70°	A	A	Saturated		70°	*C	D	Mayonnaise		70°	A	A					
	20% Aerated	70°	A	A	Chloroform		70°	A	A	Milk Fresh or Sour		Hot or Cold	A	A					
Acetic Vapors	100%	Hot	E	---	Chromium Plating Bath		70°	A	---	Mixed Acids									
Acetone		Boiling	A	---	Cider		70°	A	A	53% H ₂ SO ₄ —45% HNO ₃		Cold	B	B					
Alcohol Ethyl		70°	A	A	Citric Acid 5% Still		70°	A	A	Molasses			A	A					
Alcohol Methyl		70°	A	A	5% Still		150°	A	A	Mustard		70°	A	A					
Ammonia					15% Still		70°	A	---	Nitric Acid 5% Solution		70°	A	A					
All Concentrations		70°	A	A	15% Concentrated		Boiling	B	A	50% Solution		70°	A	A					
Gas		Hot	D	D	Coca Cola Syrup (Pure)		70°	A	A	50% Solution		Boiling	A	A					
Aniline 3%		70°	A	A	Coffee		Boiling	A	A	65% Solution		Boiling	D	D					
Beer			A	---	Creosote (Coal Tar)		Hot	A	A	Oils, Vegetable, Mineral		Hot & Cold	‡A	A					
Benzene		70°	A	A	Developing Solutions		70°	‡A	A	Paraffine		Hot & Cold	A	A					
Benzol		Hot	A	A	Dyewood Liquor		70°	‡A	---	Rosin		Molten	A	A					
Blood (Meat Juices)		Cold	*A	A	Epsom Salt		Hot & Cold	A	A	Sewage			‡A	---					
Buttermilk		70°	A	A	Ether		70°	A	A	Soap		70°	A	A					
Butyric Acid 5%		70°	A	A	Fruit Juices		70°	A	A	Sugar Juice			A	A					
5% 150°		150°	A	A	Fuel Oil		Hot	A	A	Tannic Acid		70°	A	A					
Calcium Hydroxide	10%	Boiling	A	---	Gasoline		70°	A	A	Varnish		70°	A	---					
(Lime)	20%	Boiling	A	A	Glue—Dry		70°	A	A	Vegetable Juices			A	---					
	50%	Boiling	C	---	Glycerine		70°	A	A	Vinegar		Hot	A	---					
Carbolic Acid C.P.		Boiling	A	---	Hydrogen Sulphide—Dry			A	A										
Raw		Boiling	A	---	Wet			‡B	B										
C.P.		70°	A	A	Ink			‡B	---										
Carbonated Water			A	A	Iodine			E	E										
Carbon Tetrachloride		70°	A	A	Kerosene		70°	A	A										
Aqueous Solution 5-10%		70°	*C	C	Ketchup Still		150°	A	A										
Cellulose			A	A															

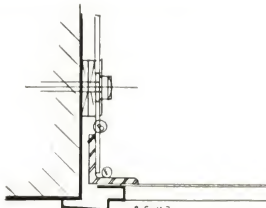
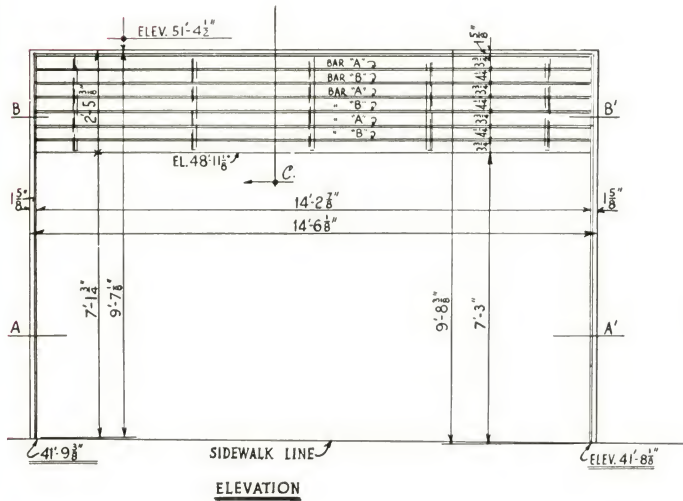
*Subject to pitting at air line or when allowed to dry.

**Keep solutions alkaline.

‡May attack when sulphuric acid is present.

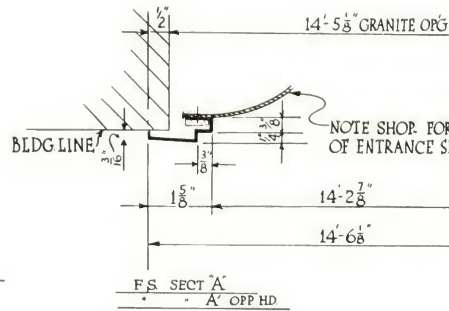
(More complete data in booklet "U·S·S Stainless and Heat Resisting Steels in the Process Industries")

In the Chrysler Building, New York, this distinctive entrance of U-S-S Stainless Steel, fabricated by the General Bronze Corporation, Long Island City, invites visitors into a modern automobile showroom. U-S-S Stainless Steel is used in the revolving door, the entrance at the left and other trim, because of its enduring, easy-to-clean brilliance.

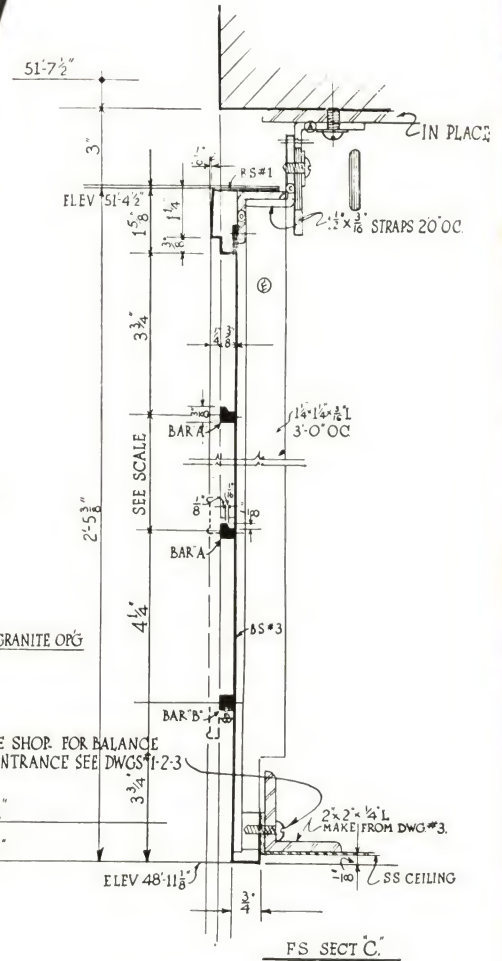


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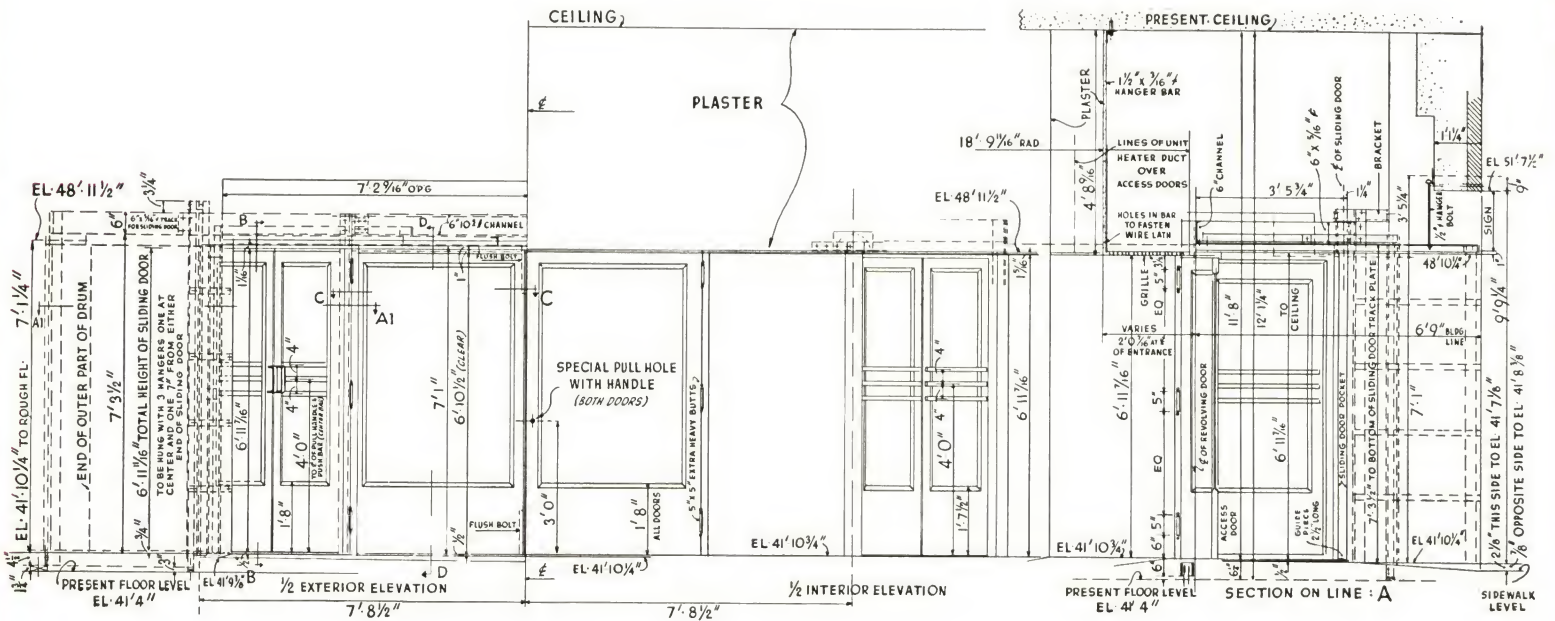
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F.S. SECT "A"
" " A' OPP HD.

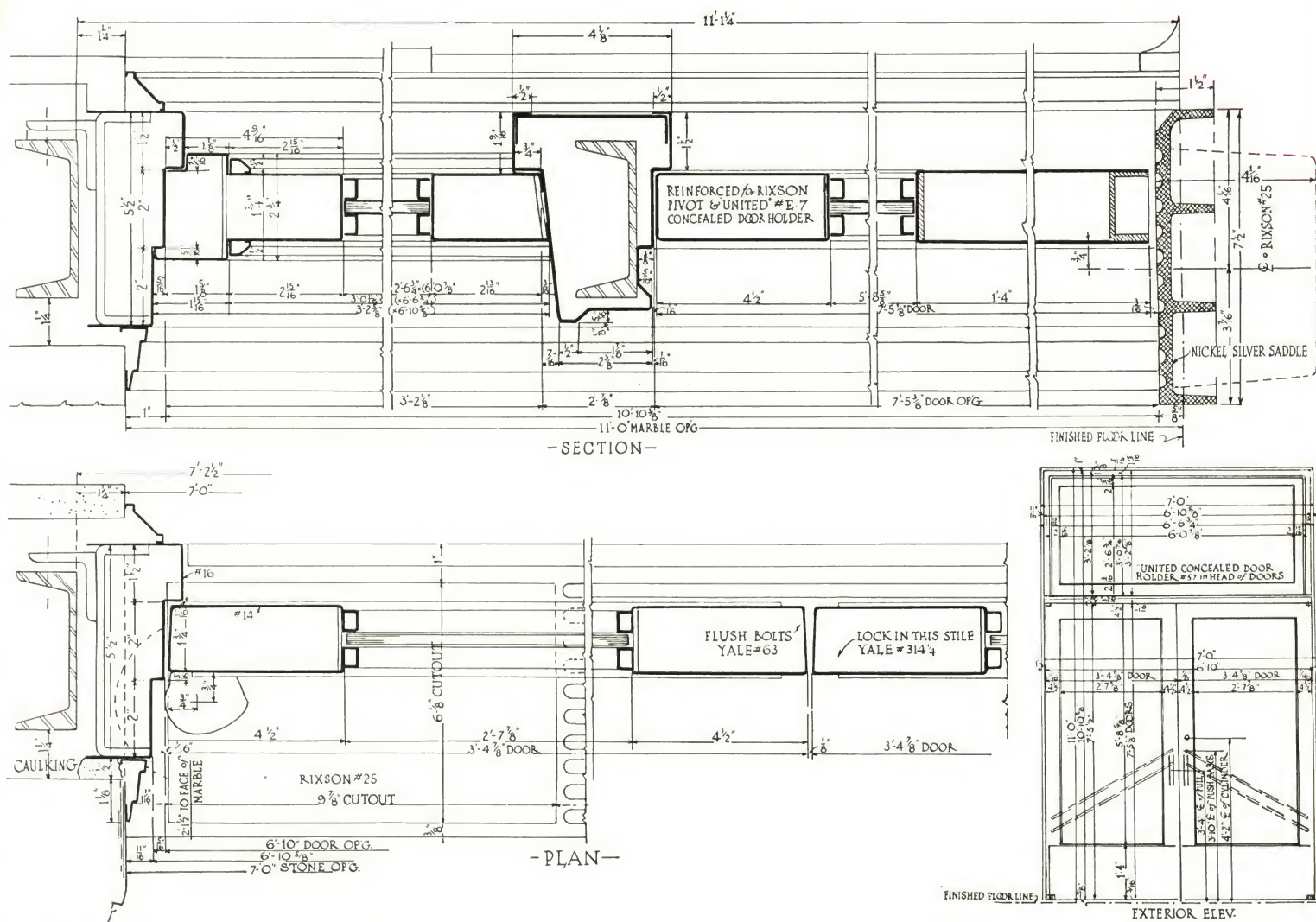


FS SECT "C."



The owners of this office building at 135 Madison Avenue, New York, find that U-S-S Stainless Steel is the only economical material for their entrance. A great labor saving in cleaning supplements the added attractiveness to tenants which gleaming stainless steel affords.

Below are the shop drawings of the entrance of U-S-S Stainless Steel at 135 Madison Avenue. The fabricators were the Superb Bronze & Iron Works, Brooklyn. Note how simple and sturdy this easily fabricated entrance appears . . . and appearances tell a true story, for brilliant U-S-S Stainless Steel will not tarnish, will outlast most buildings. That's real economy!





EXTERIOR

USES OF

USS

STAINLESS

STEEL

A modern skyscraper looks no better than its trim. Here stainless steel on the marquee and letters, as well as on window frames, adds a sparkling note to the building designed by William Lescaze.

So simple a doorway as this is made beautiful by the use of stainless steel doors and trim. U-S-S Stainless Steel, of course!

[10]

U-S-S Stainless Steel (here used for hand-rail) is functionally correct for this house designed by William Lescaze because it is tarnish-proof, strong, and specifically adapted to simplified design.



This smart chain bakery attracts customers by highlighting its small location with a front of U-S-S Stainless Steel.



An outstanding example of government architecture is the newly completed Marine Hospital on Staten Island, where U-S-S Stainless was used for roofing sheets as well as for the trim and molding on the lamp at the top of the building.

The doorway of the Marine Hospital reveals how stainless steel may be used symbolically to express a nautical theme. The stainless steel doors are easy to clean and are permanently inviting.

THERE is a freedom and beauty in architecture that is more apparent today than ever before, and in this new freedom materials play an important part. Architects designing for U-S-S Stainless Steels have found that forming, working and fabricating problems are simplified with these permanent alloys. Also, corrosion, once considered one of the necessary evils in construction, is a relic of the past. With U-S-S Stainless Steel, wasteful corrosion is eliminated.

When considering the medium with which the most attractive, modern and durable effects for building exteriors may be obtained, four features are of benefit to architects:

- (1) U-S-S Stainless Steel is available in any finish from dull satin to high polish.
- (2) This metal is so strong that its use in thin sections will materially lighten heavy canopies, marquees and hanging.
- (3) It is ideally suited for bright-metal towers, flag-poles, facades, marquees; in fact in any installations which are inaccessible for cleaning.

- (4) Stainless Steel is the only commercial metal which is permanently brilliant.

These new properties free the architect from the limitations imposed by older, less adaptable materials. U-S-S Stainless Steels give a new freedom to design and open new opportunities for architects to obtain new effects.

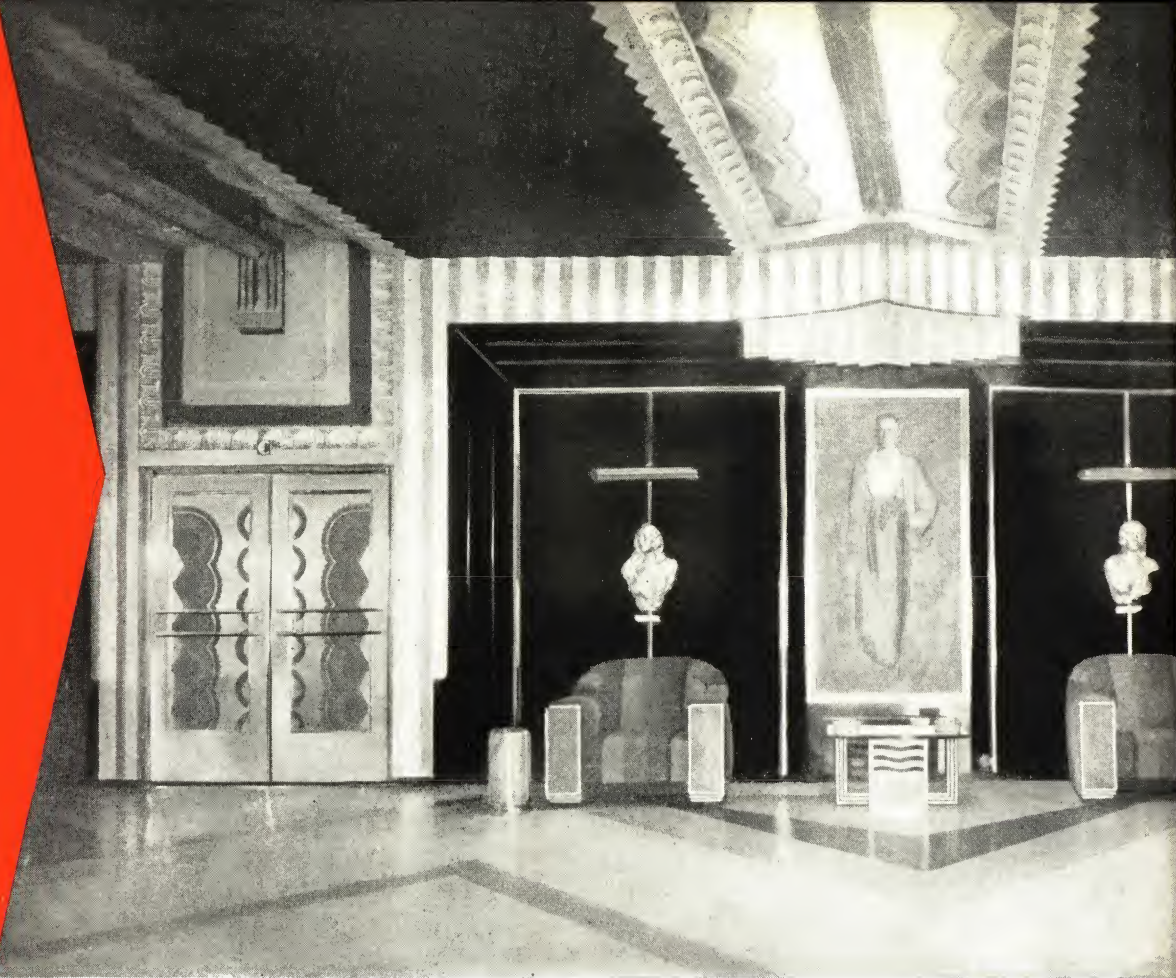
Commenting upon the application of stainless steel in the Chrysler Building, New York City, Frank B. Rogers, Vice President of the Chrysler Building Corporation, writes (in part):

"More than seven years have elapsed since the completion of the Chrysler Building in which we made extensive use of 18-8 Chrome-Nickel Steel. It has been satisfactory from every standpoint.

"There was no pitting, corrosion or other deterioration apparent; the surface when wiped appeared the same as when installed.

"To summarize, I should say that we are well pleased in every respect with the selection of 18-8 Chrome Nickel used in the Chrysler Building, and have recommended its use to others on numerous occasions."

INTERIOR USES OF U.S.S. STAINLESS STEEL



The foyer of this modern theater with its painting in a stainless steel frame, stainless steel doors and ornamental trim has proved attractive to visitors from all over the country. New Ziegfeld Theater, New York City.

THEORETICALLY an architect's work is done when the building which he has planned is complete. However, it is his creation, and his name and reputation are dependent upon its performance. If maintenance and operating costs are minimized, if pen-and-ink drawings turn into structural realities, if the client is pleased, not alone at first, but permanently, the architect has done his job well. As the result of one successful structure, many prospective building owners will seek his counsel.

For this reason, it is imperative that only the best, most satisfactory materials be used. Knowing and appreciating the value of superior materials, leading architects specify U-S-S Stainless Steel.

No other known metal can supply such completely modern and beautiful interior designs as stainless steel. With its rich, lustrous finishes, polished or dull, this metal lends warmth and dignity to any interior.

Furthermore, U-S-S Stainless Steel is just as practical as it is beautiful, and in many installations has proved itself to be a most valuable asset to the client's business. For instance—in restaurants. Here cleanliness is of prime importance. The appearance of the building is often the deciding factor between the business' success or failure. The fresh, gleaming appearance of U-S-S Stainless Steel is in itself convincing testimony as to the quality of the owner's merchandise. Architects render a valuable service to clients by designing for U-S-S Stainless Steel, not alone in dining rooms, but in the kitchens where food contamination and spoilage must be completely eliminated.

Ease of fabrication, negligible maintenance costs and permanence combine to make this new metal ideally suited to the creative instincts of every architect.

Use U-S-S Stainless Steels for interior decoration on stairways, door knobs and handles, lighting fixtures and switch plates, grilles, panels in kitchens for sinks, table tops, drain boards, etc., in bathrooms for basins, towel holders, soap trays. Where beauty is desirable and durability is important, your answer is stainless steel. Use U-S-S Stainless Steels for interior decorations with full confidence that they will enhance the appearance and lengthen the life of any building which they adorn.



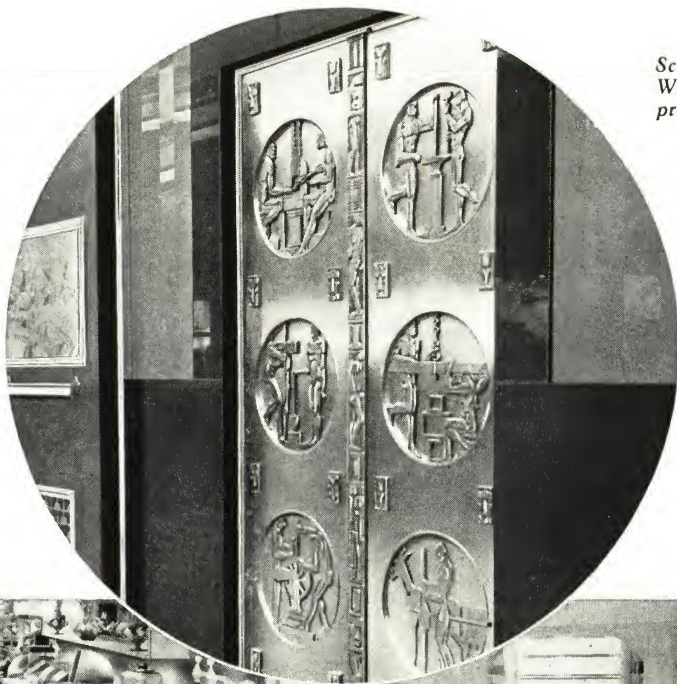
Even a modest home can revel in a kitchen equipped with side-boards, drain-boards and sinks of U-S-S Stainless Steel, because stainless steel is the only metal which is immune to food products, wear-proof and everlastingly bright!



In the observation car of a streamlined train, U-S-S Stainless Steel has been effectively employed not only to brighten the interior, but to provide modernistic, comfortable furniture and gadgets for travelers.

Sculpture in stainless steel—in the Permanent Exhibition of Stainless Steel in Washington. U-S-S Stainless Steel may be etched, tooled or enameled to produce new, beautiful effects.

In the vaults of this modern bank, U-S-S Stainless Steel not only is attractive, but makes the bank officials sleep more easily. Burglars hate stainless steel!



A drug store where many hungry patrons are served makes effective use of stainless steel for counters, food cabinets, stoves, toasters, faucets and elsewhere.

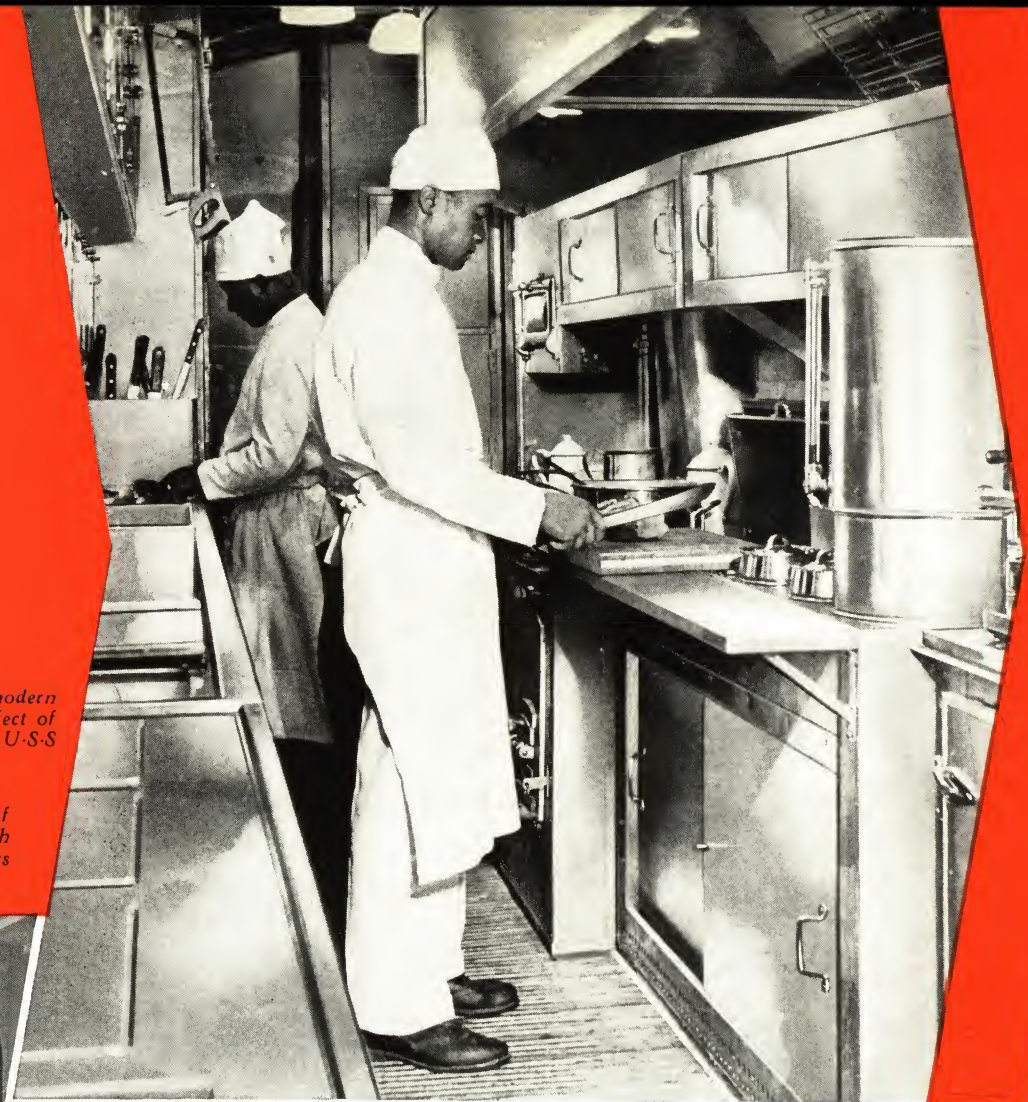
In this Santa Monica, California, penthouse U-S-S Stainless Steel was the only metal considered for the sink, drain-boards, table-tops because of its permanent beauty.



**RESTAURANT
AND BAR
EQUIPMENT
OF **U-S-S**
STAINLESS STEEL**

Aboard one of the Zephyr trains made of modern steel alloys the kitchen carries out the same effect of beauty, strength and light weight, because U-S-S Stainless Steel has been specified.

Sparkling chairs and fountain equipment of U-S-S Stainless Steel harmonize superbly with the spacious accent of the staggered mirrors which conceal indirect neon lighting.



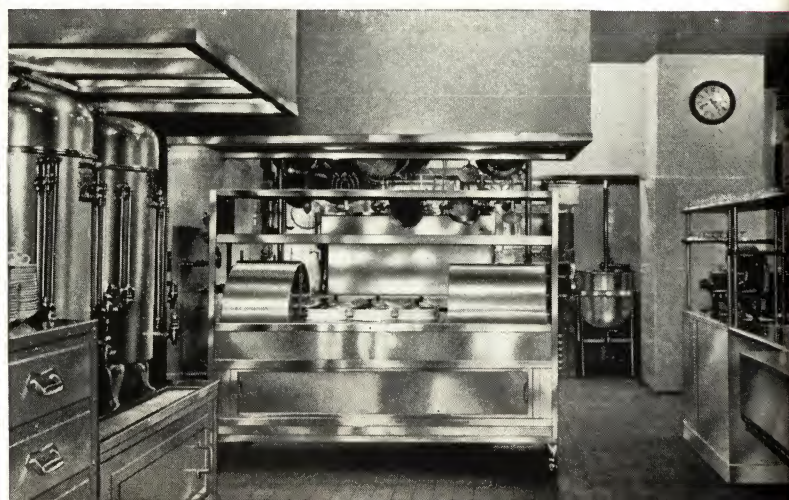
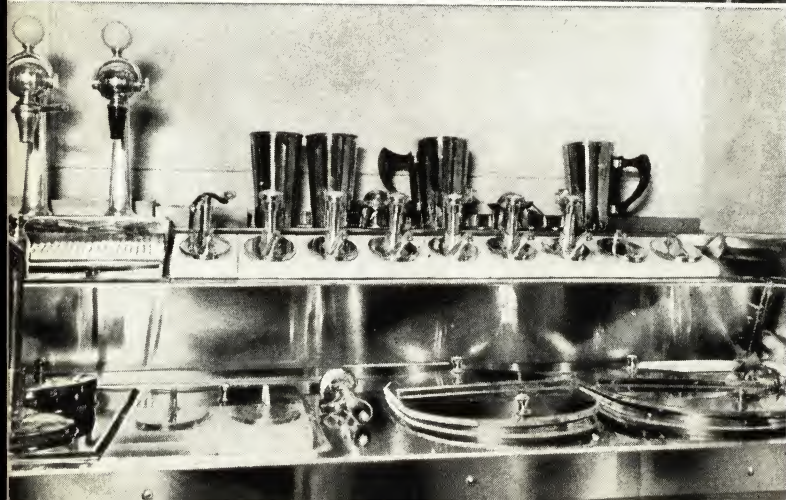
IN each of the photographs on this page, you will notice one predominating factor—inviting cleanliness. In all things pertaining to food handling, cleanliness is the first consideration.

Consider the client's angle. If U-S-S Stainless Steel is used effectively, an attractive appearance is assured. Not alone at the time of installation, but permanently. The ease with which U-S-S Stainless Steel is cleaned is a very distinct advantage to the owner. In a bar or restaurant, the beauty of U-S-S Stainless Steel actually whets appetites.

In a kitchen or galley, wherever food is handled, equipment made of U-S-S Stainless Steel decreases danger of contamination, cuts cleaning costs, and adds modern charm that rings the cash register.

On the S.S. "Santa Rosa," Grace Line, stewards find the soda-fountain of U-S-S Stainless Steel easy to clean and keep permanently bright. (Lower left.)

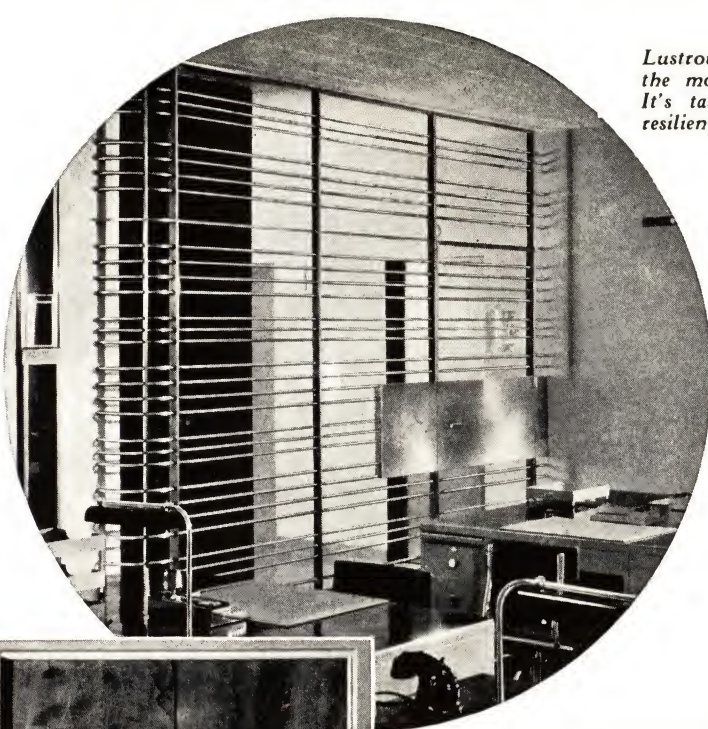
Can you imagine anything but excellent food immaculately served from this New York bank kitchen—completely equipped with U-S-S Stainless Steel?



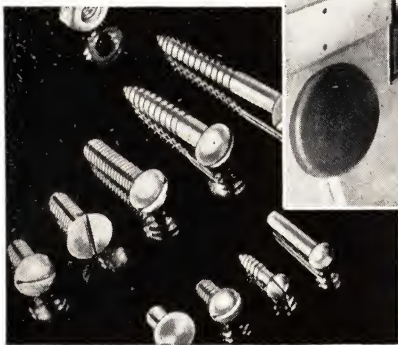
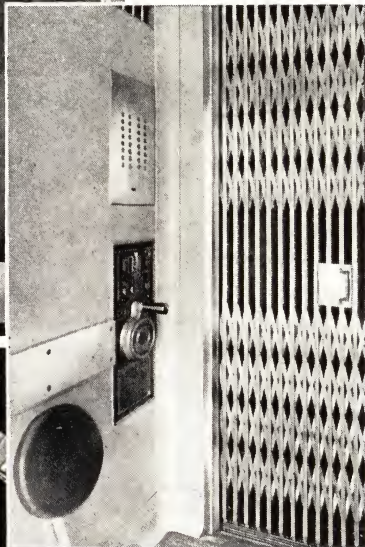
Lustrous seamless tubing of U-S-S Stainless Steel is the most suitable material for modern furniture. It's tarnish-proof, virtually scratchproof and so resilient that it can be used for springing.

MISCELLANEOUS

USES OF U-S-S STAINLESS STEEL

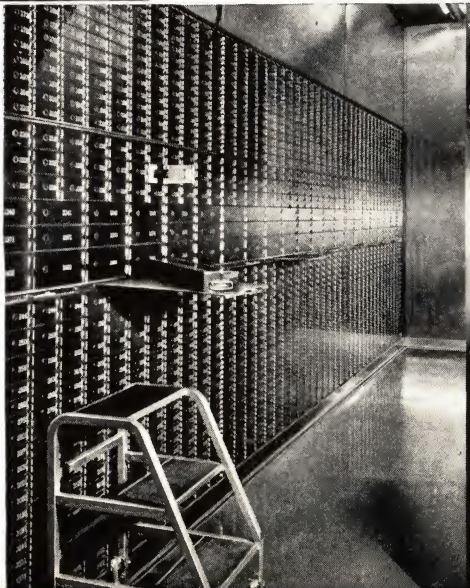


Two modern uses of stainless steel are shown on the push and kick plates of this laboratory door and the gate on the elevator.



Screws like these are but one of the many hardware items made of U-S-S Stainless Steel. Hinges, bolts, nuts, cotterpins and many other items wear longer and work better when made of stainless steel.

Easy to clean and permanently attractive is the stainless steel trim on these safe deposit boxes. The bank attendant uses a stand of U-S-S Stainless Steel, too, bright and wear-proof.



MR. J. P. FINDLEY, Operating Manager of the Jenkins Arcade, one of Pittsburgh's busiest buildings, says: "Don't forget, the owners judge me by my cost of operation. I grant you that stainless steel costs more at first—but at the end of just twelve months I can show you a net saving."

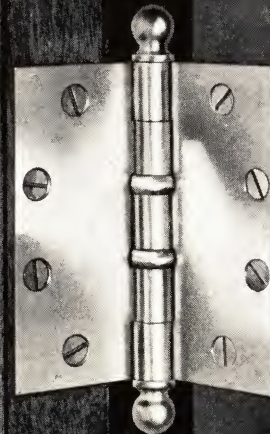
Mr. Findley has used U-S-S Stainless Steel not alone for trim, but for push-plates and kickplates. Now he plans to use the metal for letter chutes, plug-plates, locks, window mouldings, hinges—even hinge screws. For Mr. Findley knows that U-S-S Stainless Steel saves him money in these four ways:

- (1) Cleaning costs
- (2) Supplies cost, that is, material for maintenance, such as polish, labor, etc.
- (3) Refinishing costs, and
- (4) Replacement cost

"Why don't you tell the world about these savings?" he says. "Tell them that stainless steel is not only beautiful but practical—that for economy alone every building should be completely equipped with stainless steel."



Trimming and handrails of U-S-S Stainless Steel play an important part in the beauty of this staircase and escalator in a modern office building.



U-S-S Stainless Steel hinges are so strong they will never wear out and cannot let the door down. This eliminates all question of hinge replacement.



**WHENEVER YOU USE STAINLESS STEEL . . .
IT IS TO YOUR ADVANTAGE TO SPECIFY**

U.S.S.

"U.S.S." identifies stainless steel of the finest quality, made by the world's largest producer of high-grade steels. Here are three important, tangible reasons why it is to your advantage to make certain that whenever you buy or use stainless steel . . . you get "U-S-S".

The *metal* is most important. The remarkable properties of stainless steel depend on accurate composition and skillful heat treatment. Thanks to precision control, specialized equipment and skilled men who work on nothing but stainless steel, you have the greatest assurance that your stainless will never tarnish if you specify "U-S-S".

Availability is important, too. U-S-S Stainless Steel is available in every needed analysis; in the widest variety of shapes and forms and modifications; in warehouse stocks in principal cities for immediate delivery.

And so is our *consulting service* important, for we offer you whatever technical cooperation and assistance you may need. You will find a stainless steel

specialist in our principal district offices. He in turn is supported by a Stainless Steel Department at the headquarters of each subsidiary selling U-S-S Stainless Steel, where the very finest in research and laboratory equipment are ready to study your problem if the answer is not already known. From their wide experience, these men can often suggest valuable new ideas from other fields—ideas which may help you execute a better job at a lower cost. You are invited to discuss your problems freely with them, with no obligation.

We suggest that it is to your advantage to specify "U-S-S". After all, it is only natural that the world's largest producer of high grade steels should be the most advantageous source for stainless steel.

AMERICAN STEEL & WIRE COMPANY
Chicago—New York

CARNEGIE-ILLINOIS STEEL CORPORATION
Pittsburgh—Chicago

NATIONAL TUBE COMPANY
Pittsburgh

COLUMBIA STEEL COMPANY
San Francisco

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